

CLAIMS:

1. A solidifying material for a cell electrolyte solution, characterized in that said solidifying material is a block copolymer comprising, as segments A, a polymer non-compatible with said cell electrolyte solution and, as segments B, a polymer compatible with said cell electrolyte solution, and absorbs and solidifies said cell electrolyte solution; a smallest unit of said block copolymer is A-B-A; and to each of said segments B, at least one group selected from the group consisting of a carboxyl group, an ester group, a hydroxyl group, a sulfonic group, an amino group, a cyclic carbonate group and a polyoxyalkylene group is bonded via a -S- bond or a -C- bond.

2. A solidifying material according to claim 1, wherein each of said segments A is a polymer selected from the group consisting of polystyrene, polyethylene and polypropylene and having a weight average molecular weight of from 10,000 to 500,000 and a content of said segments A in said block copolymer is 0.5 to 70 wt.%; and each of said segments B is a polymer selected from the group consisting of polybutadiene, polychloroprene and polyisoprene and having a weight average molecular weight of from 10,000 to 300,000.

3. A solidifying material according to claim 1, further comprising not greater than 85 wt.%, based on said block copolymer, of an elastomer non-compatible with said cell electrolyte solution.

4. A solidifying material according to claim 1, which is in a form of a film or sheet of from 0.0001 to 2 mm in thickness.

5. A solidifying material for a cell electrolyte solution, characterized in that said solidifying material is a graft copolymer comprising, as segments A, a polymer non-compatible with said cell electrolyte solution and, as segments B, a polymer compatible with said cell electrolyte solution, and absorbs and solidifies said cell electrolyte solution; and to each of said segments B, at least one group selected from the group consisting of a carboxyl group, an ester group, a hydroxyl group, a sulfonic group, an amino group, a cyclic carbonate group and a polyoxyalkylene group is bonded.

10 6. A solidifying material according to claim 5, wherein each of said segments A is a polymer selected from the group consisting of polystyrene, polyethylene, polypropylene, polyacrylonitrile and poly(meth)acrylate ester having a weight average molecular weight of from 3,000 to 20,000, and a content of said segments A in said graft copolymer is 0.5 to 70 wt.%.

15 7. A solidifying material according to claim 5, further comprising not greater than 85 wt.%, based on said graft copolymer, of an elastomer non-compatible with said cell electrolyte solution.

20 8. A solidifying material according to claim 5, which is in a form of a film or sheet of from 0.0005 to 2 mm in thickness.

25 9. A cell comprising, as a constituent element, a

solidifying material according to any one of claims 1-8.

10. A solidifying material for a cell electrolyte solution, characterized in that said solidifying material comprises a film or sheet of a polymer having properties that
5 said polymer is insoluble in said cell electrolyte solution but said polymer absorbs and solidifies said cell electrolyte solution, and a backing reinforcing said film or sheet; and said backing is a woven fabric, a nonwoven fabric or a porous film.

10 11. A solidifying material according to claim 10, wherein said polymer is a block or graft copolymer as defined in any one of claims 1-8.

15 12. A solidifying material according to claim 10, wherein said polymer is a polymer which comprises, as a principal component, polyacrylic acid, poly(N-vinylacetamide), poly[(2-oxo-1,3-dioxoran-4-yl)methyl (meth)acrylate] or polyacrylamide.

13. A solidifying material according to claim 10, which is in a form of particles having an average particles size not greater than 100 μm .

20 14. A solidifying material according to claim 10, wherein said backing is made of polyethylene or polypropylene.

15. A solidifying material according to claim 10, wherein said backing is a film or sheet of from 1 to 1,200 μm in thickness and of from 95 to 100% in porosity.

25 16. A solidifying material according to claim 10, further

comprising not greater than 85 wt.%, based on said polymer, of an elastomer non-compatible with said electrolyte solution.

17. A cell comprising, as a constituent element, a solidifying material according to any one of claims 10-16.